05 90
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RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/055,475

DATE: 10/03/2002
TIME: 15:05:31

Input Set : A:\EP.txt
Output Set: N:\CRF4\10032002\J055475.raw

```
 4 <110> APPLICANT: Fisher, Paul B.
 5         Kang, Dong-Chul
 6         Gopalkrishnan, Rahul V.
 8 <120> TITLE OF INVENTION: USE OF MDA-5 AS AN ANTIVIRAL AND
 9         ANTIPROLIFERATIVE AGENT
11 <130> FILE REFERENCE: A34614-A-PCT-USA-A (070050.1921)
13 <140> CURRENT APPLICATION NUMBER: 10/055,475
14 <141> CURRENT FILING DATE: 2002-01-22
16 <150> PRIOR APPLICATION NUMBER: PCT/US01/06960
17 <151> PRIOR FILING DATE: 2001-02-28
19 <150> PRIOR APPLICATION NUMBER: 09/515,363
20 <151> PRIOR FILING DATE: 2000-02-29
22 <160> NUMBER OF SEQ ID NOS: 17
24 <170> SOFTWARE: FastSEQ for Windows Version 4.0
26 <210> SEQ ID NO: 1
27 <211> LENGTH: 3365
28 <212> TYPE: DNA
29 <213> ORGANISM: homo sapiens
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33 cctgcttctc taagtgggca gcggacagcg gcacgcacat ttcacctgtc ccgcagacaa 120
34 cagcaccatc tgcttgggag aaccctctcc cttctctgag aaagaaagat gtcgaatggg 180
35 tattccacag acgagaattt ccgctatctc atctcgtgct tcagggccag ggtgaaaatg 240
36 tacatccagg tggagcctgt gctggactac ctgacctttc tgcctgcaga ggtgaaggag 300
37 cagattcaga ggacagtcgc cacctccggg aacatgcagg cagttgaact gctgctgagc 360
38 accttggaga agggagtctg gcaccttggt tggactcggg aattcgtgga ggccctccgg 420
39 agaaccggca gccctctggc cgcccgctac atgaaccctg agctcacgga cttgccctct 480
40 ccatcgtttg agaacgctca tgatgaatat ctccaactgc tgaacctcct tcagcccact 540
41 ctggtggaca agcttctagt tagagacgtc ttggataagt gcatggagga ggaactgttg 600
42 acaattgaag acagaaaccg gattgctgct gcagaaaaca atggaaatga atcaggtgta 660
43 agagagctac taaaaaggat tgtgcagaaa gaaaactggt tctctgcatt tctgaatgtt 720
44 cttcgtcaaa caggaaacaa tgaacttgtc caagagttaa caggctctga ttgctcagaa 780
45 agcaatgcag agattgagaa tttatcacaa gttgatggtc ctcaagtgga agagcaactt 840
46 ctttcaacca cagttcagcc aaatctggag aaggaggtct ggggcatgga gaataactca 900
47 tcagaatcat cttttgcaga ttcttctgta gtttcagaat cagacacaag tttggcagaa 960
48 ggaagtgtca gctgcttaga tgaaagtctt ggacataaca gcaacatggg cagtgattca 1020
49 ggcaccatgg gaagtgattc agatgaagag aatgtggcag caagagcatc cccggagcca 1080
50 gaactccagc tcaggcctta ccaaatggaa gttgcccagc cagccttgga agggaagaat 1140
51 atcatcatct gcctccctac agggagtgga aaaaccagag tggctgttta cattgccaag 1200
52 gatcacttag acaagaagaa aaaagcatct gagcctggaa aagttatagt tcttgtcaat 1260
53 aaggtactgc tagttgaaca gctcttccgc aaggagttcc aaccattttt gaagaaatgg 1320
54 tatcgtgtta ttggattaag tggtgatacc caactgaaaa tatcatttcc agaagttgtc 1380
55 aagtcctgtg atattattat cagtacagct caaatccttg aaaactccct cttaaacttg 1440
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56 gaaaatggag aagatgctgg tgttcaattg tcagactttt ccctcattat cattgatgaa 1500
57 tgtcatcaca ccaacaaaga agcagtgtat aataacatca tgaggcatta tttgatgcag 1560
58 aagttgaaaa acaatagact caagaaagaa aacaaaccag tgattcccct tcctcagata 1620
59 ctgggactaa cagcttcacc tggtgttgga ggggccacga agcaagccaa agctgaagaa 1680
60 cacattttaa aactatgtgc caatcttgat gcatttacta ttaaaactgt taaagaaaac 1740
61 cttgatcaac tgaaaaacca aatacaggag ccatgcaaga agtttgccat tgcagatgca 1800
62 accagagaag atccatttaa agagaaactt ctagaaataa tgacaaggat tcaaacttat 1860
63 tgtcaaatga gtccaatgtc agattttgga actcaaccct atgaacaatg ggccattcaa 1920
64 atggaaaaaa aagctgcaaa aaaaggaaat cgcaaagaac gtgtttgtgc agaacatttg 1980
65 aggaagtaca atgaggccct acaaattaat gacacaattc gaatgataga tgcgtatact 2040
66 catcttgaaa ctttctataa tgaagagaaa gataagaagt ttgcagtcat agaagatgat 2100
67 agtgatgagg gtggtgatga tgagtattgt gatggtgatg aagatgagga tgatttaaag 2160
68 aaacctttga aactggatga aacagataga tttctcatga ctttattttt tgaaaacaat 2220
69 aaaatgttga aaaggctggc tgaaaaccca gaatatgaaa atgaaaagct gaccaaatta 2280
70 agaaatacca taatggagca atatactagg actgaggaat cagcacgagg aataatcttt 2340
71 acaaaaacac gacagagtgc atatgcgctt tcccagtgga ttactgaaaa tgaaaaattt 2400
72 gctgaagtag gagtcaaagc ccaccatctg attggagctg gacacagcag tgagttcaaa 2460
73 cccatgacac agaatgaaca aaaagaagtc attagtaaat ttcgcactgg aaaaatcaat 2520
74 ctgcttatcg ctaccacagt ggcagaagaa ggtctggata ttaaagaatg taacattgtt 2580
75 atccgttatg gtctcgtcac caatgaaata gccatggtcc aggcccgtgg tcgagccaga 2640
76 gctgatgaga gcacctacgt cctggttgct cacagtggtt caggagttat cgaacatgag 2700
77 acagttaatg atttccgaga gaagatgatg tataaagcta tacattgtgt tcaaaatatg 2760
78 aaaccagagg agtatgctca taagattttg gaattacaga tgcaaagtat aatggaaaag 2820
79 aaaatgaaaa ccaagagaaa tattgccaag cattacaaga ataacccatc actaataact 2880
80 ttcctttgca aaaactgcag tgtgctagcc tgttctgggg aagatatcca tgtaattgag 2940
81 aaaatgcatc acgtcaatat gaccccagaa ttcaaggaac tttacattgt aagagaaaac 3000
82 aaagcactgc aaaagaagtg tgccgactat caaataaatg gtgaaatcat ctgcaaatgt 3060
83 ggccaggctt ggggaacaat gatggtgcac aaaggcttag atttgccttg tctcaaaata 3120
84 aggaattttg tagtggttcaa caaaaataat tcaacaaaga aacaatacaa aaagtgggta 3180
85 gaattaccta tcacatttcc caatcttgac tattcagaat gctgtttatt tagtgatgag 3240
86 gattagcact tgattgaaga ttctttttaaa atactatcag ttaaacattt aatatgatta 3300
87 tgattaatgt attcattatg ctacagaact gacataagaa tcaataaaat gattgtttta 3360
88 ctctg                                                             3365
90 <210> SEQ ID NO: 2
91 <211> LENGTH: 1025
92 <212> TYPE: PRT
93 <213> ORGANISM: homo sapiens
95 <400> SEQUENCE: 2
96 Met Ser Asn Gly Tyr Ser Thr Asp Glu Asn Phe Arg Tyr Leu Ile Ser
97 1               5                   10                  15
98 Cys Phe Arg Ala Arg Val Lys Met Tyr Ile Gln Val Glu Pro Val Leu
99             20                  25                  30
100 Asp Tyr Leu Thr Phe Leu Pro Ala Glu Val Lys Glu Gln Ile Gln Arg
101         35                  40                  45
102 Thr Val Ala Thr Ser Gly Asn Met Gln Ala Val Glu Leu Leu Leu Ser
103     50                  55                  60
104 Thr Leu Glu Lys Gly Val Trp His Leu Gly Trp Thr Arg Glu Phe Val
105 65                  70                  75                  80
106 Glu Ala Leu Arg Arg Thr Gly Ser Pro Leu Ala Ala Arg Tyr Met Asn
```

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Input Set : A:\EP.txt
Output Set: N:\CRF4\10032002\J055475.raw

```
107                    85                  90                  95
108 Pro Glu Leu Thr Asp Leu Pro Ser Pro Ser Phe Glu Asn Ala His Asp
109            100                 105                 110
110 Glu Tyr Leu Gln Leu Leu Asn Leu Leu Gln Pro Thr Leu Val Asp Lys
111            115                 120                 125
112 Leu Leu Val Arg Asp Val Leu Asp Lys Cys Met Glu Glu Glu Leu Leu
113        130                 135                 140
114 Thr Ile Glu Asp Arg Asn Arg Ile Ala Ala Ala Glu Asn Asn Gly Asn
115 145                150                 155                 160
116 Glu Ser Gly Val Arg Glu Leu Leu Lys Arg Ile Val Gln Lys Glu Asn
117            165                 170                 175
118 Trp Phe Ser Ala Phe Leu Asn Val Leu Arg Gln Thr Gly Asn Asn Glu
119            180                 185                 190
120 Leu Val Gln Glu Leu Thr Gly Ser Asp Cys Ser Glu Ser Asn Ala Glu
121        195                 200                 205
122 Ile Glu Asn Leu Ser Gln Val Asp Gly Pro Gln Val Glu Glu Gln Leu
123        210                 215                 220
124 Leu Ser Thr Thr Val Gln Pro Asn Leu Glu Lys Glu Val Trp Gly Met
125 225                230                 235                 240
126 Glu Asn Asn Ser Ser Glu Ser Ser Phe Ala Asp Ser Ser Val Val Ser
127            245                 250                 255
128 Glu Ser Asp Thr Ser Leu Ala Glu Gly Ser Val Ser Cys Leu Asp Glu
129        260                 265                 270
130 Ser Leu Gly His Asn Ser Asn Met Gly Ser Asp Ser Gly Thr Met Gly
131        275                 280                 285
132 Ser Asp Ser Asp Glu Glu Asn Val Ala Ala Arg Ala Ser Pro Glu Pro
133        290                 295                 300
134 Glu Leu Gln Leu Arg Pro Tyr Gln Met Glu Val Ala Gln Pro Ala Leu
135 305                310                 315                 320
136 Glu Gly Lys Asn Ile Ile Ile Cys Leu Pro Thr Gly Ser Gly Lys Thr
137            325                 330                 335
138 Arg Val Ala Val Tyr Ile Ala Lys Asp His Leu Asp Lys Lys Lys Lys
139        340                 345                 350
140 Ala Ser Glu Pro Gly Lys Val Ile Val Leu Val Asn Lys Val Leu Leu
141        355                 360                 365
142 Val Glu Gln Leu Phe Arg Lys Glu Phe Gln Pro Phe Leu Lys Lys Trp
143        370                 375                 380
144 Tyr Arg Val Ile Gly Leu Ser Gly Asp Thr Gln Leu Lys Ile Ser Phe
145 385                390                 395                 400
146 Pro Glu Val Val Lys Ser Cys Asp Ile Ile Ile Ser Thr Ala Gln Ile
147            405                 410                 415
148 Leu Glu Asn Ser Leu Leu Asn Leu Glu Asn Gly Glu Asp Ala Gly Val
149        420                 425                 430
150 Gln Leu Ser Asp Phe Ser Leu Ile Ile Ile Asp Glu Cys His His Thr
151        435                 440                 445
152 Asn Lys Glu Ala Val Tyr Asn Asn Ile Met Arg His Tyr Leu Met Gln
153        450                 455                 460
154 Lys Leu Lys Asn Asn Arg Leu Lys Lys Glu Asn Lys Pro Val Ile Pro
155 465                470                 475                 480
```

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/055,475

DATE: 10/03/2002
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Input Set : A:\EP.txt
Output Set: N:\CRF4\10032002\J055475.raw

```
156 Leu Pro Gln Ile Leu Gly Leu Thr Ala Ser Pro Gly Val Gly Gly Ala
157               485                   490               495
158 Thr Lys Gln Ala Lys Ala Glu Glu His Ile Leu Lys Leu Cys Ala Asn
159           500               505               510
160 Leu Asp Ala Phe Thr Ile Lys Thr Val Lys Glu Asn Leu Asp Gln Leu
161           515               520               525
162 Lys Asn Gln Ile Gln Glu Pro Cys Lys Lys Phe Ala Ile Ala Asp Ala
163       530               535                   540
164 Thr Arg Glu Asp Pro Phe Lys Glu Lys Leu Leu Glu Ile Met Thr Arg
165 545                   550               555                   560
166 Ile Gln Thr Tyr Cys Gln Met Ser Pro Met Ser Asp Phe Gly Thr Gln
167               565               570                   575
168 Pro Tyr Glu Gln Trp Ala Ile Gln Met Glu Lys Lys Ala Ala Lys Lys
169           580               585               590
170 Gly Asn Arg Lys Glu Arg Val Cys Ala Glu His Leu Arg Lys Tyr Asn
171           595               600               605
172 Glu Ala Leu Gln Ile Asn Asp Thr Ile Arg Met Ile Asp Ala Tyr Thr
173       610               615               620
174 His Leu Glu Thr Phe Tyr Asn Glu Glu Lys Asp Lys Lys Phe Ala Val
175 625               630               635                   640
176 Ile Glu Asp Asp Ser Asp Glu Gly Gly Asp Asp Glu Tyr Cys Asp Gly
177               645               650                   655
178 Asp Glu Asp Glu Asp Asp Leu Lys Lys Pro Leu Lys Leu Asp Glu Thr
179           660               665               670
180 Asp Arg Phe Leu Met Thr Leu Phe Phe Glu Asn Asn Lys Met Leu Lys
181       675               680               685
182 Arg Leu Ala Glu Asn Pro Glu Tyr Glu Asn Glu Lys Leu Thr Lys Leu
183       690               695               700
184 Arg Asn Thr Ile Met Glu Gln Tyr Thr Arg Thr Glu Glu Ser Ala Arg
185 705               710               715                   720
186 Gly Ile Ile Phe Thr Lys Thr Arg Gln Ser Ala Tyr Ala Leu Ser Gln
187               725               730                   735
188 Trp Ile Thr Glu Asn Glu Lys Phe Ala Glu Val Gly Val Lys Ala His
189           740               745               750
190 His Leu Ile Gly Ala Gly His Ser Ser Glu Phe Lys Pro Met Thr Gln
191           755               760               765
192 Asn Glu Gln Lys Glu Val Ile Ser Lys Phe Arg Thr Gly Lys Ile Asn
193       770               775               780
194 Leu Leu Ile Ala Thr Thr Val Ala Glu Glu Gly Leu Asp Ile Lys Glu
195 785               790               795                   800
196 Cys Asn Ile Val Ile Arg Tyr Gly Leu Val Thr Asn Glu Ile Ala Met
197           805               810               815
198 Val Gln Ala Arg Gly Arg Ala Arg Ala Asp Glu Ser Thr Tyr Val Leu
199           820               825               830
200 Val Ala His Ser Gly Ser Gly Val Ile Glu His Glu Thr Val Asn Asp
201           835               840               845
202 Phe Arg Glu Lys Met Met Tyr Lys Ala Ile His Cys Val Gln Asn Met
203       850               855               860
204 Lys Pro Glu Glu Tyr Ala His Lys Ile Leu Glu Leu Gln Met Gln Ser
```

RAW SEQUENCE LISTING   DATE: 10/03/2002
PATENT APPLICATION: US/10/055,475   TIME: 15:05:31

Input Set : A:\EP.txt
Output Set: N:\CRF4\10032002\J055475.raw

```
205 865                   870                   875                        880
206 Ile Met Glu Lys Lys Met Lys Thr Lys Arg Asn Ile Ala Lys His Tyr
207               885                   890                   895
208 Lys Asn Asn Pro Ser Leu Ile Thr Phe Leu Cys Lys Asn Cys Ser Val
209           900                   905                   910
210 Leu Ala Cys Ser Gly Glu Asp Ile His Val Ile Glu Lys Met His His
211           915                   920                   925
212 Val Asn Met Thr Pro Glu Phe Lys Glu Leu Tyr Ile Val Arg Glu Asn
213       930                   935                   940
214 Lys Ala Leu Gln Lys Lys Cys Ala Asp Tyr Gln Ile Asn Gly Glu Ile
215 945  _            950                   955                        960
216 Ile Cys Lys Cys Gly Gln Ala Trp Gly Thr Met Met Val His Lys Gly
217               965                   970                   975
218 Leu Asp Leu Pro Cys Leu Lys Ile Arg Asn Phe Val Val Val Phe Lys
219           980                   985                   990
220 Asn Asn Ser Thr Lys Lys Gln Tyr Lys Lys Trp Val Glu Leu Pro Ile
221           995                   1000                  1005
222 Thr Phe Pro Asn Leu Asp Tyr Ser Glu Cys Cys Leu Phe Ser Asp Glu
223     1010                  1015                  1020
224 Asp
225 1025
227 <210> SEQ ID NO: 3
228 <211> LENGTH: 1036
229 <212> TYPE: DNA
230 <213> ORGANISM: homo sapiens
232 <220> FEATURE:
233 <221> NAME/KEY: misc_feature
234 <222> LOCATION: 551
235 <223> OTHER INFORMATION: n = A,T,C or G
237 <400> SEQUENCE: 3
238 gcacattttg gcctacaaag gaccttattg ttaaggcaga acctgctggg aaaacaaaat 60
239 atccgccgga ggagctttgt agagcgttgg tcttggtgtc agagagaatt cgctttcctt 120
240 ttctgtttcc cgcggtgtcc ttaaccaaag gcctcctctc ttcacccgcc ccgaccaaaa 180
241 ggtggcgtct ccctgaggaa actccctccc cgccaggcag attacgttta caaagtcctg 240
242 agaagagaat cgaaacagaa accaaagtca ggcaaactct gtaagaactg cctgacagaa 300
243 agctggactc aaagctccta cccgagtgtg cagcaggatc gccccggtcc gggacccgag 360
244 gcgcacaccg cagagtccaa agtgccgcgc ctgccggccg cacctgcctg ccgcggcccc 420
245 gcgcgccgcc ccgctgccca cctgccgccc tgcccacctg cccaggtgcg agtgcagccc 480
246 cgcgcgccgg cctgagagcc ctgtggacaa cctcgtcatt gtcaggcaca gagcggtaga 540
247 ccctgcttct ntaagtgggc agcggacagc ggcacgcaca tttcacctgt cccgcagaca 600
248 acagcaccat ctgcttggga gaaccctctc ccttctctga gaaagaaaga tgtcgaatgg 660
249 gtattccaca gacgagaatt tccgctatct catctcgtgc ttcaggccca gggtgaaaat 720
250 gtacatccag gtggagcctg tgctggacta cctgaccttt ctgcctgcag aggtgaagga 780
251 gcagattcag aggacagtcg ccacctccgg gaacatgcag gcagttgaac tgctgctgag 840
252 caccttggag aagggagtct ggcaccttgg ttggactcgg gaattcgtgg aggccctccg 900
253 gagaaccggc agccctctgg ccgcccgcta catgaaccct gagctcacgg acttgccctc 960
254 tccatcgttt gagaacgctc atgatgaata tctccaactg ctgaacctcc ttcagcccac 1020
255 tctggtggac aagctt                                                 1036
258 <210> SEQ ID NO: 4
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W--> 247 (marker at line 247)

RAW SEQUENCE LISTING ERROR SUMMARY DATE: 10/03/2002
PATENT APPLICATION: US/10/055,475 TIME: 15:05:32

Input Set : A:\EP.txt
Output Set: N:\CRF4\10032002\J055475.raw

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:3; N Pos. 551

VERIFICATION SUMMARY   DATE: 10/03/2002
PATENT APPLICATION: **US/10/055,475**   TIME: 15:05:32

Input Set : **A:\EP.txt**
Output Set: **N:\CRF4\10032002\J055475.raw**

L:247 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:540